

## SEQUENCE LISTING JC20 Rec'd PCT/PTO 05 JUL 2005

<110> bioMérieux  
Centre National de la Recherche Scientifique (CNRS) [National Center for  
Scientific Research]  
University Claude Bernard Lyon 1

<120> Polypeptides F' of the hepatitis C virus, T epitopes, and the diagnostic  
and therapeutic applications thereof

<130> Polypeps F'

<150> FR03/00094  
<151> 2003-01-07

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<170> PatentIn version 3.1

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Xaa Xaa Gly Xaa Asp Gly Ser Cys Xaa Pro Xaa Xaa Xaa Gly Leu Xaa
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Gly Ala Xaa Xaa Thr Pro Xaa Xaa Gly Xaa Xaa Xaa Trp Val Xaa Ser
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Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Leu Gly Leu Val  
50 55 60

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 35 40 45  
 Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Val Leu Gly Leu Val

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Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala  
35                   40                           45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Leu Gly Leu Val  
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20                   25                           30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Leu Ala Met Arg Ala  
35                   40                           45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Leu Gly Leu Val  
50                   55                           60

Gly Ala Pro Gln Thr Pro Gly Val Gly Arg Val Thr Trp Val Lys Ser  
65                   70                           75                   80

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Pro Gly Leu Ser Leu Gly Ile Leu Gly Pro Ser Met Ala Met Arg Ala
35          40          45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Leu Gly Leu Val
50          55          60

Gly Ala Leu Met Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser
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Pro Gly Leu Ser Leu Gly Ile Leu Gly Pro Ser Met Ala Met Arg Ala
35          40          45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Leu Gly Leu Val
50          55          60

Gly Ala Pro Met Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser
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Pro	Gly	Leu	Ser	Pro	Gly	Ile	Leu	Gly	Pro	Ser	Met	Ala	Met	Arg	Ala
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Trp	Gly	Gly	Gln	Asp	Gly	Ser	Cys	His	Pro	Ala	Ala	Leu	Gly	Leu	Ala
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Gly	Ala	Leu	Pro	Thr	Pro	Gly	Val	Gly	Arg	Val	Thr	Trp	Val	Arg	Ser
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Pro	Gly	Leu	Ser	Leu	Gly	Thr	Leu	Gly	Pro	Ser	Met	Ala	Met	Arg	Ala
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Trp	Gly	Gly	Gln	Asp	Gly	Ser	Cys	His	Pro	Ala	Ala	Leu	Gly	Leu	Val
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Gly	Ala	Pro	Gln	Thr	Pro	Gly	Val	Gly	Arg	Val	Ile	Trp	Val	Arg	Ser
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Pro	Gly	Leu	Ser	Pro	Gly	Thr	Leu	Gly	Pro	Ser	Met	Ala	Met	Arg	Ala
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Trp	Gly	Gly	Gln	Asp	Gly	Ser	Cys	His	Pro	Ala	Ala	Leu	Gly	Leu	Val
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Gly	Ala	Pro	Leu	Thr	Pro	Gly	Val	Gly	Arg	Val	Ile	Trp	Val	Arg	Ser
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Pro	Gly	Leu	Ser	Pro	Gly	Thr	Leu	Gly	Pro	Ser	Met	Ala	Met	Arg	Ala
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Trp	Gly	Gly	Gln	Asp	Gly	Ser	Cys	His	Pro	Glu	Ala	Leu	Gly	Leu	Val
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Gly	Ala	Pro	Leu	Thr	Pro	Gly	Val	Gly	Arg	Val	Ile	Trp	Val	Arg	Ser
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Pro	Gly	Leu	Ser	Pro	Gly	Thr	Leu	Gly	Pro	Ser	Met	Ala	Met	Arg	Ala
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Trp	Gly	Gly	Gln	Asp	Gly	Ser	Cys	His	Pro	Ala	Ala	Leu	Gly	Leu	Val
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Gly	Ala	Pro	Thr	Thr	Pro	Gly	Val	Gly	Arg	Val	Ile	Trp	Val	Arg	Ser
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Pro	Gly	Leu	Ser	Pro	Gly	Thr	Leu	Gly	Pro	Ser	Met	Ala	Met	Arg	Ala
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Trp	Gly	Gly	Gln	Asp	Gly	Ser	Cys	His	Pro	Ala	Ala	Leu	Gly	Leu	Val
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Gly	Ala	Pro	Met	Thr	Pro	Gly	Val	Gly	Arg	Val	Ile	Trp	Val	Arg	Ser
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Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala  
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Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Leu Gly Leu Val  
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Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Ala Ile Trp Val Arg Ser  
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Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala  
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Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Leu Gly Leu Val  
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Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Ala Ile Trp Val Arg Ser  
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Pro	Gly	Leu	Ser	Leu	Gly	Thr	Leu	Gly	Pro	Ser	Met	Ala	Met	Arg	Ala	
	35															45
Trp	Gly	Gly	Gln	Asp	Gly	Ser	Cys	His	Pro	Ala	Ala	Leu	Gly	Leu	Val	
	50															60
Gly	Ala	Pro	Arg	Thr	Pro	Gly	Val	Gly	Arg	Val	Ile	Trp	Val	Arg	Ser	
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Ser	Ser	Ala														

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Ala	Glu	Gly	Asp	Asn	Leu	Ser	Pro	Arg	Leu	Ala	Ile	Pro	Arg	Ala	Gly	
	20															30
Pro	Gly	Leu	Ser	Leu	Gly	Thr	Leu	Gly	Pro	Ser	Met	Ala	Met	Arg	Ala	
	35															45
Trp	Gly	Gly	Gln	Asp	Gly	Ser	Cys	Arg	Pro	Ala	Ala	Leu	Gly	Leu	Val	
	50															60
Gly	Ala	Pro	Arg	Thr	Pro	Gly	Val	Gly	Arg	Val	Ile	Trp	Val	Arg	Ser	
	65															80
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Ser	Ser	Ala														

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Pro Gly Leu Ser Leu Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala  
 35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Leu Gly Leu Val  
 50 55 60

Gly Ala Pro Leu Thr Pro Gly Val Gly Arg Ala Ile Trp Val Arg Ser  
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 20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Thr Ala Met Arg Ala  
 35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Leu Gly Leu Val  
 50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
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20 25 30

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35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Leu Gly Leu Val
50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Thr Trp Val Arg Ser
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Ser Ile Pro Ser His Ala Ala Ser Pro Ile Ser Trp Gly Thr Phe Arg
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Ser Ser Ala

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20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Thr Ala Met Arg Ala  
35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Leu Gly Leu Val  
50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
85 90 95

Ser Ser Ala

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<210> 22
<211> 99
<212> PRT
<213> Artificial Sequence
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<220>  
<223> anti-HCV immunogenic peptide

<400> 22

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Phe Ala Asp Pro Arg Ala Gly  
 20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Pro Thr Arg Val  
 35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Leu Gly Leu Val  
 50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Ala Ile Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Ser Arg Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85 90 95

Ser Ser Ala

<210> 23

<211> 99

<212> PRT

<213> Artificial Sequence

<220>

<223> anti-HCV immunogenic peptide

<400> 23

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Asp Pro Arg Ala Gly  
 20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Pro Thr Arg Val  
 35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Glu Ala Pro Gly Leu Val  
 50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Ala Ile Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Leu His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85 90 95

Ser Ser Ala

<210> 24

<211> 99

<212> PRT

<213> Artificial Sequence

<220>

<223> anti-HCV immunogenic peptide

<400> 24

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
 20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Val Thr Arg Val  
 35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Glu Ala Leu Gly Leu Ala  
 50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Leu Arg Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85 90 95

Ser Ser Ala

<210> 25  
<211> 99  
<212> PRT  
<213> Artificial sequence

<220>  
<223> anti-HCV immunogenic peptide

<400> 25

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Asp Pro Arg Ala Gly  
 20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Val  
 35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Glu Ala Leu Gly Leu Val  
 50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Ala Ile Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Leu His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85 90 95

Ser Ser Ala

<210> 26  
<211> 99  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> anti-HCV immunogenic peptide

<400> 26

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
                     20                   25                   30  
 Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Val  
                     35                   40                   45  
 Trp Gly Gly Gln Asp Gly Ser Cys His Pro Gly Ala Leu Gly Leu Val  
                     50                   55                   60  
 Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
                     65                   70                   75                   80  
 Ser Ile Pro Leu His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
                     85                   90                   95  
 Leu Ser Ala

<210> 27  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> anti-HCV immunogenic peptide  
  
 <400> 27  
  
 Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
                     5                   10                   15  
  
 Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
                     20                   25                   30  
  
 Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Thr Ala Met Arg Val  
                     35                   40                   45  
  
 Trp Gly Gly Gln Asp Gly Ser Cys His Pro Glu Ala Leu Gly Leu Val  
                     50                   55                   60  
  
 Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
                     65                   70                   75                   80  
  
 Ser Ile Pro Leu His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
                     85                   90                   95  
 Leu Ser Ala

<210> 28  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> anti-HCV immunogenic peptide  
  
 <400> 28  
  
 Ser Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
                     5                   10                   15  
  
 Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
                     20                   25                   30

Pro Gly Pro Ser Pro Gly Thr Pro Gly Pro Ser Met Ala Met Arg Val  
 35                          40                          45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Glu Ala Leu Gly Leu Val  
 50                          55                          60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65                          70                          75                          80

Ser Ile Pro Leu His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85                          90                          95

Ser Ser Ala

<210> 29  
<211> 99  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> anti-HCV immunogenic peptide

<400> 29

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1                          5                          10                          15

Val Glu Gly Asp Asn Leu Ser Pro Arg Phe Ala Gly Pro Arg Ala Gly  
 20                          25                          30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Thr Arg Val  
 35                          40                          45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Leu Gly Leu Ile  
 50                          55                          60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65                          70                          75                          80

Ser Ile Pro Leu His Ala Gly Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85                          90                          95

Ser Ser Ala

<210> 30  
<211> 99  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> anti-HCV immunogenic peptide

<400> 30

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1                          5                          10                          15

Val Glu Gly Asp Asn Leu Ser Pro Arg Phe Ala Gly Pro Arg Ala Gly  
 20                          25                          30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Val  
   35                   40                   45  
 Trp Gly Gly Gln Asp Gly Ser Cys His Pro Gly Ala Leu Gly Leu Val  
   50                   55                   60  
 Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
   65                   70                   75                   80  
 Ser Ile Pro Leu His Ala Gly Ser Pro Thr Ser Trp Gly Thr Phe Arg  
   85                   90                   95  
 Ser Ser Ala

<210> 31  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide

<400> 31

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
   1                   5                   10                   15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Val Gly  
   20                   25                   30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Thr Arg Val  
   35                   40                   45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Leu Gly Leu Val  
   50                   55                   60

Gly Ala Pro Gln Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
   65                   70                   75                   80

Ser Ile Pro Leu His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
   85                   90                   95

Leu Ser Ala

<210> 32  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide

<400> 32

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Ile  
   1                   5                   10                   15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Val Gly  
   20                   25                   30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Thr Arg Val  
   35                   40                   45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Leu Gly Leu Val  
 50 55 60

Gly Ala Pro Gln Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Leu His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85 90 95

Leu Ser Ala

<210> 33  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide

<400> 33

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Gly His Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Val Gly  
 20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Thr Arg Val  
 35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Arg Gly Leu Val  
 50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Ala Ile Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Leu His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85 90 95

Leu Ser Ala

<210> 34  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide

<400> 34

Gly Trp Val Cys Ala Arg Gly Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Ala Asp Asn Leu Ser Pro Arg Leu Ala Val Pro Arg Glu Gly  
 20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Thr Arg Val  
 35 40 45

Trp Gly Gly Leu Asp Gly Ser Cys His Pro Glu Ala Pro Gly Leu Val  
 50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85 90 95

Ser Ser Ala

<210> 35

<211> 99

<212> PRT

<213> Artificial Sequence

<220>

<223> anti-HCV immunogenic peptide

<400> 35

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
 20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Thr Arg Val  
 35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Glu Ala Pro Gly Leu Val  
 50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85 90 95

Ser Ser Ala

<210> 36

<211> 99

<212> PRT

<213> Artificial Sequence

<220>

<223> anti-HCV immunogenic peptide

<400> 36

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
 20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Val  
 35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Glu Ala Leu Gly Leu Val  
 50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65                   70                   75                   80

Ser Ile Pro Ser Gln Val Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85                   90                   95

Ser Ser Ala

<210> 37  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide

<400> 37

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1                   5                   10                   15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
 20                   25                   30

Pro Gly Leu Ser Pro Gly Thr Pro Gly Pro Ser Met Ala Met Arg Val  
 35                   40                   45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Leu Gly Leu Val  
 50                   55                   60

Gly Ala Pro Gln Thr Pro Gly Ala Gly Arg Val Ile Trp Val Arg Ser  
 65                   70                   75                   80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85                   90                   95

Ser Ser Ala

<210> 38  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide

<400> 38

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1                   5                   10                   15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
 20                   25                   30

Pro Gly Leu Ser Pro Gly Thr Pro Gly Pro Ser Met Ala Met Arg Val  
 35                   40                   45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Leu Gly Leu Val  
 50                   55                   60

Gly Ala Pro Gln Thr Pro Gly Ala Gly Arg Val Ile Trp Val Gly Ser  
 65                   70                   75                   80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85                   90                   95

Ser Ser Ala

<210> 39  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide

<400> 39

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1                   5                   10                   15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
 20                   25                   30

Pro Gly Leu Ser Pro Gly Thr Pro Gly Pro Ser Met Ala Met Arg Val  
 35                   40                   45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Leu Gly Leu Val  
 50                   55                   60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65                   70                   75                   80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85                   90                   95

Ser Ser Ala

<210> 40  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide

<400> 40

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1                   5                   10                   15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
 20                   25                   30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Leu Ser Met Ala Met Arg Ala  
 35                   40                   45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Leu Gly Leu Val  
 50                   55                   60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Thr Trp Val Arg Ser  
 65                   70                   75                   80

Ser Ile Pro Leu His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
85 90 95

Ser Ser Ala

<210> 41  
<211> 99  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> anti-HCV immunogenic peptide

<400> 41

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Leu Ser Met Ala Met Arg Val  
35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys Arg Pro Val Ala Leu Gly Leu Val  
50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
85 90 95

Ser Ser Ala

<210> 42  
<211> 99  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> anti-HCV immunogenic peptide

<400> 42

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Leu Ser Met Ala Met Arg Val  
35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys Arg Pro Val Ala Pro Gly Leu Val  
50 55 60

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
85 90 95

Ser Ser Ala

<210> 43  
<211> 99  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> anti-HCV immunogenic peptide

<400> 43

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala  
35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Leu Gly Leu Val  
50 55 60

Gly Ala Pro Gln Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
85 90 95

Leu Ser Ala

<210> 44  
<211> 99  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> anti-HCV immunogenic peptide

<400> 44

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala  
                  35                 40                 45  
 Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Leu Gly Leu Val

Gly Ala Pro Gln Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg

Ser Ser Ala

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<210> 45
<211> 99
<212> PRT
<213> Artificial Sequence

<220>
<223> anti-HCV immunogenic peptide

<400> 45

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu
1           5          10          15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Asp Pro Arg Ala Gly
20          25          30

Pro Gly Leu Ser Pro Gly Ile Leu Gly Pro Ser Met Ala Met Arg Ala
35          40          45

Leu Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Pro Gly Leu Val
50          55          60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser
65          70          75          80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg
85          90          95

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Ser Ser Ala

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<210> 46
<211> 99
<212> PRT
<213> Artificial Sequence

<220>
<223> anti-HCV immunogenic peptide

<400> 46

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu
1           5          10          15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Asp Pro Arg Ala Gly
20          25          30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala
35          40          45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Pro Gly Leu Val
50          55          60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser
65          70          75          80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Ile Phe Arg
85          90          95

```

Ser Ser Ala

```

<210> 47
<211> 99
<212> PRT
<213> Artificial Sequence

<220>
<223> anti-HCV immunogenic peptide

<400> 47

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu
1          5           10          15

Val Asp Gly Asp Asn Leu Ser Pro Arg Leu Ala Asp Pro Arg Ala Gly
20         25           30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala
35         40           45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Pro Gly Leu Val
50         55           60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Thr Trp Val Arg Ser
65         70           75           80

Ser Ile Pro Leu His Ala Ala Ser Pro Ile Ser Trp Gly Ile Phe Arg
85         90           95

```

Ser Ser Ala

```

<210> 48
<211> 99
<212> PRT
<213> Artificial Sequence

<220>
<223> anti-HCV immunogenic peptide

<400> 48

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu
1          5           10          15

Val Glu Gly Asp Asn Leu Ser Gln Arg Leu Ala Asn Pro Arg Ala Gly
20         25           30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala
35         40           45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Pro Gly Leu Val
50         55           60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Thr Trp Val Arg Ser
65         70           75           80

Ser Ile Pro Leu His Ala Ala Ser Pro Ile Ser Trp Gly Thr Phe Arg
85         90           95

```

Ser Ser Ala

```

<210> 49
<211> 99
<212> PRT
<213> Artificial Sequence

<220>
<223> anti-HCV immunogenic peptide

<400> 49

Gly Trp Val Cys Val Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu
1          5           10          15

Val Glu Gly Asp Asn Leu Ser Gln Arg Leu Ala Asn Pro Arg Ala Gly
20         25           30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala
35         40           45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Pro Gly Leu Val
50         55           60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Thr Trp Val Arg Ser
65         70           75           80

Ser Ile Pro Leu His Ala Ala Ser Pro Ile Ser Trp Gly Thr Phe Arg
85         90           95

```

Ser Ser Ala

```

<210> 50
<211> 99
<212> PRT
<213> Artificial Sequence

<220>
<223> anti-HCV immunogenic peptide

<400> 50

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu
1          5           10          15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Asn Pro Arg Ala Gly
20         25           30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala
35         40           45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Pro Gly Leu Val
50         55           60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser
65         70           75           80

Ser Ile Pro Leu His Ala Ala Ser Pro Ile Ser Trp Gly Thr Phe Arg
85         90           95

```

Ser Ser Ala

<210> 51  
<211> 99  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> anti-HCV immunogenic peptide

<400> 51

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Val Asp Pro Arg Ala Gly  
20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala  
35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Pro Gly Leu Val  
50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
65 70 75 80

Ser Ile Pro Leu His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
85 90 95

Ser Ser Ala

<210> 52  
<211> 99  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> anti-HCV immunogenic peptide

<400> 52

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Asn Pro Arg Val Gly  
20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala  
35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Pro Gly Leu Val  
50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Ile Ser Trp Gly Thr Phe Arg  
85 90 95

Ser Ser Ala

<210> 53  
<211> 99  
<212> PRT  
<213> Artificial Sequence  
  
<220>  
<223> anti-HCV immunogenic peptide  
  
<400> 53  
  
Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
1 5 10 15  
  
Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Asn Pro Arg Val Gly  
20 25 30  
  
Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala  
35 40 45  
  
Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Pro Gly Leu Val  
50 55 60  
  
Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
65 70 75 80  
  
Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
85 90 95  
  
Ser Ser Ala

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<210> 54
<211> 99
<212> PRT
<213> Artificial Sequence

<220>
<223> anti-HCV immunogenic peptide

<400> 54

Gly Trp Val Cys Ala Arg Pro Gly Arg Leu Pro Ser Gly Arg Asn Leu
1           5           10          15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly
20          25          30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Leu Ser Met Ala Met Arg Ala
35          40          45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Pro Gly Leu Val
50          55          60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser
65          70          75          80

Ser Ile Pro Ser His Ala Ala Ser Pro Ile Ser Trp Gly Thr Phe Arg
85          90          95

Ser Ser Ala

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<210> 55  
<211> 99

<212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> anti-HCV immunogenic peptide  
  
 <400> 55

Gly	Trp	Val	Cys	Ala	Arg	Leu	Gly	Arg	Leu	Pro	Ser	Gly	Arg	Asn	Leu
1				5					10					15	

Val	Glu	Gly	Asp	Asn	Leu	Ser	Pro	Arg	Leu	Ala	Gly	Pro	Arg	Ala	Gly
	20					25							30		

Pro	Gly	Leu	Ser	Pro	Gly	Thr	Leu	Gly	Pro	Ser	Met	Ala	Met	Arg	Ala
	35					40					45				

Trp	Gly	Gly	Gln	Asp	Gly	Ser	Cys	His	Pro	Ala	Ala	Pro	Gly	Leu	Val
	50					55					60				

Gly	Ala	Pro	Arg	Thr	Pro	Gly	Val	Gly	Arg	Val	Thr	Trp	Val	Arg	Ser
	65					70			75		80				

Ser	Ile	Pro	Ser	His	Ala	Ala	Ser	Pro	Thr	Ser	Trp	Gly	Thr	Phe	Arg
								85	90				95		

Ser Ser Ala

<210> 56  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> anti-HCV immunogenic peptide  
  
 <400> 56

Gly	Trp	Val	Cys	Ala	Arg	Leu	Gly	Arg	Leu	Pro	Ser	Gly	Arg	Asn	Leu
1					5				10					15	

Val	Glu	Gly	Asp	Ser	Leu	Ser	Pro	Arg	Leu	Ala	Gly	Pro	Arg	Val	Gly
	20					25							30		

Pro	Gly	Leu	Ser	Pro	Gly	Thr	Leu	Gly	Pro	Ser	Met	Ala	Met	Arg	Val
	35					40					45				

Trp	Gly	Gly	Gln	Asp	Gly	Ser	Cys	His	Pro	Val	Ala	Pro	Gly	Leu	Val
	50					55					60				

Gly	Ala	Pro	Pro	Thr	Pro	Gly	Val	Gly	Arg	Val	Ile	Trp	Val	Arg	Ser
	65					70			75		80				

Ser	Ile	Pro	Ser	His	Ala	Ala	Ser	Pro	Thr	Ser	Trp	Gly	Thr	Phe	Arg
								85	90			95			

Ser Ser Ala

<210> 57  
 <211> 99  
 <212> PRT

<213> Artificial Sequence

<220>

<223> anti-HCV immunogenic peptide

<400> 57

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
1 5 10 15

Val Glu Gly Asp Ser Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Val  
35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Lys Ala Leu Gly Leu Val  
50 55 60

Gly Ala Pro Glu Thr Pro Gly Val Gly Arg Val Thr Trp Val Arg Ser  
65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
85 90 95

Ser Ser Ala

<210> 58

<211> 99

<212> PRT

<213> Artificial Sequence

<220>

<223> anti-HCV immunogenic peptide

<400> 58

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
1 5 10 15

Val Glu Gly Asp Ser Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly  
20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala  
35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Pro Gly Leu Val  
50 55 60

Gly Ala Pro Gln Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
85 90 95

Ser Ser Ala

<210> 59

<211> 99

<212> PRT

<213> Artificial Sequence

<220>

<223> anti-HCV immunogenic peptide

<400> 59

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
1               5               10               15

Val Glu Gly Asp Ser Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
20               25               30

Pro Gly His Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala  
35               40               45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Pro Gly Leu Val  
50               55               60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
65               70               75               80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
85               90               95

Ser Ser Ala

<210> 60

<211> 99

<212> PRT

<213> Artificial Sequence

<220>

<223> anti-HCV immunogenic peptide

<400> 60

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
1               5               10               15

Val Glu Gly Asp Ser Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
20               25               30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala  
35               40               45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Pro Gly Leu Val  
50               55               60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
65               70               75               80

Ser Thr Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
85               90               95

Ser Ser Ala

<210> 61

<211> 99

<212> PRT

<213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide  
 <400> 61

Gly	Trp	Val	Cys	Ala	Arg	Ser	Gly	Arg	Leu	Pro	Ser	Gly	Arg	Asn	Pro
1				5					10						15

Val	Glu	Gly	Asp	Ser	Leu	Ser	Pro	Arg	Leu	Ala	Gly	Pro	Arg	Ala	Gly
	20					25							30		

Pro	Gly	Leu	Ser	Pro	Gly	Ile	Leu	Gly	Pro	Ser	Met	Ala	Met	Arg	Ala
		35					40					45			

Trp	Gly	Gly	Gln	Asp	Gly	Ser	Cys	His	Pro	Ala	Ala	Pro	Gly	Leu	Val
	50					55						60			

Gly	Ala	Pro	Arg	Thr	Pro	Gly	Val	Gly	Arg	Val	Ile	Trp	Val	Arg	Ser
	65					70			75				80		

Ser	Ile	Pro	Ser	His	Ala	Ala	Ser	Pro	Thr	Ser	Trp	Gly	Thr	Phe	Arg
		85						90					95		

Ser Ser Ala

<210> 62  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide  
 <400> 62

Gly	Trp	Val	Cys	Ala	Arg	Leu	Gly	Arg	Leu	Pro	Ser	Gly	Arg	Asn	Leu
1					5				10						15

Val	Glu	Gly	Asp	Ser	Leu	Ser	Pro	Arg	Leu	Ala	Gly	Pro	Arg	Ala	Gly
	20					25							30		

Pro	Gly	Leu	Ser	Pro	Gly	Thr	Leu	Gly	Pro	Ser	Met	Ala	Met	Arg	Ala
		35				40						45			

Trp	Gly	Gly	Gln	Asp	Gly	Ser	Cys	His	Pro	Ala	Ala	Leu	Gly	Leu	Val
	50					55						60			

Gly	Ala	Pro	Arg	Thr	Pro	Gly	Val	Gly	Arg	Val	Ile	Trp	Val	Arg	Ser
	65					70			75				80		

Ser	Ile	Pro	Ser	His	Ala	Ala	Ser	Pro	Thr	Ser	Trp	Gly	Thr	Phe	Arg
		85						90					95		

Ser Ser Ala

<210> 63  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide

<400> 63

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
 20 25 30

Pro Gly Leu Ser Pro Gly Ile Leu Gly Pro Ser Met Ala Met Arg Ala  
 35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys Arg Pro Val Ala Pro Gly Leu Val  
 50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85 90 95

Ser Ser Ala

<210> 64  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide  
 <400> 64

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
 20 25 30

Pro Gly Leu Ser Pro Gly Ile Leu Gly Pro Ser Thr Ala Thr Arg Ala  
 35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Val Pro Gly Leu Val  
 50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85 90 95

Ser Ser Ala

<210> 65  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide  
 <400> 65

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
 20 25 30

Pro Gly Arg Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala  
 35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Pro Gly Leu Val  
 50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Ile Phe Arg  
 85 90 95

Ser Ser Ala

<210> 66

<211> 99

<212> PRT

<213> Artificial Sequence

<220>

<223> anti-HCV immunogenic peptide

<400> 66

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Gly Asp Ser Leu Ser Pro Arg Leu Ala Asn Pro Arg Ala Gly  
 20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Thr Arg Ala  
 35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys Leu Pro Val Ala Pro Gly Leu Val  
 50 55 60

Gly Ala Pro Gln Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65 70 75 80

Ser Thr Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85 90 95

Leu Ser Ala

<210> 67

<211> 99

<212> PRT

<213> Artificial Sequence

<220>

<223> anti-HCV immunogenic peptide

<400> 67

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1               5               10               15  
 Val Glu Gly Asp Ser Leu Ser Pro Arg Leu Ala Asn Pro Arg Ala Gly  
 20              25              30  
 Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Thr Arg Val  
 35              40              45  
 Trp Gly Gly Gln Asp Gly Ser Cys Leu Pro Val Ala Pro Gly Leu Val  
 50              55              60  
 Gly Ala Pro Gln Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65              70              75              80  
 Ser Thr Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85              90              95  
 Ser Ser Ala

<210> 68  
<211> 99  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> anti-HCV immunogenic peptide

<400> 68

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1               5               10               15  
 Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
 20              25              30  
 Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Thr Arg Val  
 35              40              45  
 Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Pro Gly Leu Val  
 50              55              60  
 Gly Ala Pro Gln Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65              70              75              80  
 Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Ser Arg  
 85              90              95  
 Ser Ser Ala

<210> 69  
<211> 99  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> anti-HCV immunogenic peptide

<400> 69

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1               5               10               15

Val Glu Gly Asp Asn Leu Ser Pro Arg Phe Ala Ser Pro Arg Ala Gly  
   20                   25                   30  
 Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Thr Arg Ala  
   35                   40                   45  
 Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Pro Gly Leu Val  
   50                   55                   60  
 Gly Ala Pro Gln Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
   65                   70                   75                   80  
 Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
   85                   90                   95  
 Ser Ser Ala

<210> 70  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> anti-HCV immunogenic peptide  
  
 <400> 70  
  
 Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
   1                   5                   10                   15  
  
 Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Val Gly  
   20                   25                   30  
  
 Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Thr Arg Ala  
   35                   40                   45  
  
 Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Pro Gly Leu Val  
   50                   55                   60  
  
 Gly Ala Pro Gln Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
   65                   70                   75                   80  
  
 Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
   85                   90                   95  
  
 Ser Ser Ala

<210> 71  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> anti-HCV immunogenic peptide  
  
 <400> 71  
  
 Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
   1                   5                   10                   15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Val Gly  
 20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Thr Arg Ala  
 35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Pro Gly Leu Ile  
 50 55 60

Gly Ala Pro Gln Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85 90 95

Ser Ser Ala

<210> 72

<211> 99

<212> PRT

<213> Artificial Sequence

<220>

<223> anti-HCV immunogenic peptide

<400> 72

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Val Gly  
 20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Thr Arg Ala  
 35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Pro Gly Leu Val  
 50 55 60

Gly Ala Pro Pro Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Ser Arg  
 85 90 95

Ser Ser Ala

<210> 73

<211> 99

<212> PRT

<213> Artificial Sequence

<220>

<223> anti-HCV immunogenic peptide

<400> 73

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Val Gly  
 20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Thr Arg Ala  
 35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Pro Gly Leu Val  
 50 55 60

Gly Ala Pro Gln Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85 90 95

Ser Ser Ala

<210> 74  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide

<400> 74

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
 20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Thr Arg Ala  
 35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Pro Gly Leu Val  
 50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85 90 95

Ser Ser Ala

<210> 75  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide

<400> 75

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
 20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Thr Arg Ala  
   35                   40                   45  
 Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Pro Gly Leu Val  
   50                   55                   60  
 Gly Ala Pro Val Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
   65                   70                   75                   80  
 Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
   85                   90                   95  
 Ser Ser Ala

<210> 76  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide  
 <400> 76

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
   1                   5                   10                   15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
   20                   25                   30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Thr Arg Ala  
   35                   40                   45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Pro Gly Leu Val  
   50                   55                   60

Gly Ala Pro Thr Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
   65                   70                   75                   80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
   85                   90                   95

Leu Ser Ala

<210> 77  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide  
 <400> 77

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
   1                   5                   10                   15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
   20                   25                   30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Thr Arg Ala  
   35                   40                   45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Pro Gly Leu Val  
   50                       55                       60  
 Gly Ala Pro Thr Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
   65                      70                      75                   80  
 Ser Ile Pro Leu His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
   85                      90                      95  
 Leu Ser Ala

<210> 78  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide

<400> 78

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
   1                      5                          10                   15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly  
   20                      25                      30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Thr Arg Ala  
   35                      40                      45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Pro Gly Leu Val  
   50                      55                      60

Gly Ala Pro Thr Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
   65                      70                      75                   80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
   85                      90                      95

Leu Ser Ala

<210> 79  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide

<400> 79

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
   1                      5                          10                   15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly  
   20                      25                      30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Thr Arg Ala  
   35                      40                      45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Pro Gly Leu Val  
 50 55 60

Gly Ala Pro Met Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85 90 95

Leu Ser Ala

<210> 80  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide

<400> 80

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly His Asn Leu  
 1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
 20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Thr Arg Ala  
 35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Pro Gly Leu Val  
 50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85 90 95

Leu Ser Ala

<210> 81  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide

<400> 81

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly His Asn Leu  
 1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Val Gly  
 20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Thr Arg Ala  
 35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Pro Gly Leu Val  
 50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65                   70                   75                   80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85                   90                   95

Ser Ser Ala

<210> 82  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide

<400> 82

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly His Asn Leu  
 1                   5                   10                   15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly  
 20                   25                   30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Thr Arg Ala  
 35                   40                   45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Pro Gly Leu Val  
 50                   55                   60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65                   70                   75                   80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85                   90                   95

Ser Ser Ala

<210> 83  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide

<400> 83

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1                   5                   10                   15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
 20                   25                   30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Val Thr Arg Ala  
 35                   40                   45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Pro Gly Leu Val  
 50                   55                   60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65                   70                   75                   80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85                   90                   95

Ser Ser Ala

<210> 84  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide

<400> 84

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1                   5                   10                   15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
 20                   25                   30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Thr Arg Ala  
 35                   40                   45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Pro Gly Leu Val  
 50                   55                   60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65                   70                   75                   80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85                   90                   95

Ser Ser Ala

<210> 85  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide

<400> 85

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1                   5                   10                   15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
 20                   25                   30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Thr Arg Ala  
 35                   40                   45

Trp Gly Gly Gln Asp Gly Ser Cys Pro Pro Ala Ala Pro Gly Leu Val  
 50                   55                   60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65                   70                   75                   80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
85 90 95

Ser Ser Ala

<210> 86  
<211> 99  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> anti-HCV immunogenic peptide

<400> 86

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly  
20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Thr Arg Ala  
35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Leu Gly Leu Val  
50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
85 90 95

Leu Ser Ala

<210> 87  
<211> 99  
<212> PRT  
<213> Artificial sequence

<220>  
<223> anti-HCV immunogenic peptide

<400> 87

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly  
20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Thr Arg Ala  
35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Pro Gly Leu Val  
50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
85 90 95

Ser Ser Ala

<210> 88  
<211> 99  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> anti-HCV immunogenic peptide

<400> 88

Gly Trp Val Cys Ala Gln Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
20 25 30

Pro Gly Pro Ser Pro Gly Thr Leu Gly Pro Ser Met Val Thr Arg Ala  
35 40 45

Trp Asp Gly Gln Asp Gly Ser Cys His Pro Val Ala Leu Gly Leu Val  
50 55 60

Gly Ala Pro Leu Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
85 90 95

Ser Ser Ala

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<210> 89
<211> 99
<212> PRT
<213> Artificial Sequence
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<220>  
<223> anti-HCV immunogenic peptide

<400> 89

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Gly Asp Ser Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Val Thr Arg Ala  
 35                   40                   45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Leu Gly Leu Ile

Gly Ala Leu Gln Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg

Ser Ser Ala

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<210> 90
<211> 99
<212> PRT
<213> Artificial Sequence

<220>
<223> anti-HCV immunogenic peptide

<400> 90

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu
1          5           10          15

Val Val Gly Asp Asn Leu Ser Pro Arg Leu Ala Asp Pro Arg Ala Gly
20         25           30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Val Ile Arg Ala
35         40           45

Trp Gly Gly Gln Asp Gly Ser Cys Pro Pro Val Ala Leu Gly Leu Val
50         55           60

Gly Ala Pro Met Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser
65         70           75           80

Ser Ile Pro Ser His Ala Val Ser Pro Thr Ser Trp Gly Thr Phe Arg
85         90           95

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Ser Ser Ala

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<210> 91
<211> 99
<212> PRT
<213> Artificial Sequence

<220>
<223> anti-HCV immunogenic peptide

<400> 91

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu
1          5           10          15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly
20         25           30

Pro Gly Leu Ser Pro Gly Ile Leu Gly Pro Ser Met Ala Met Arg Ala
35         40           45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Leu Gly Leu Val
50         55           60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser
65         70           75           80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg
85         90           95

```

Ser Ser Ala

```

<210> 92
<211> 99
<212> PRT
<213> Artificial Sequence

<220>
<223> anti-HCV immunogenic peptide

<400> 92

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu
1           5          10          15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly
20          25          30

Pro Gly Leu Ser Pro Gly Ile Pro Gly Pro Ser Met Ala Met Arg Ala
35          40          45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Leu Gly Leu Val
50          55          60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser
65          70          75          80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg
85          90          95

```

Ser Ser Ala

```

<210> 93
<211> 99
<212> PRT
<213> Artificial Sequence

<220>
<223> anti-HCV immunogenic peptide

<400> 93

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu
1           5          10          15

Ala Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly
20          25          30

Pro Gly Leu Ser Pro Gly Thr His Gly Pro Ser Met Ala Met Arg Ala
35          40          45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Leu Gly Leu Val
50          55          60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser
65          70          75          80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg
85          90          95

```

Ser Ser Ala

<210> 94  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> anti-HCV immunogenic peptide  
  
 <400> 94  
  
 Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1               5                   10                   15  
  
 Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly  
 20              25                   30  
  
 Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala  
 35              40                   45  
  
 Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Leu Gly Leu Val  
 50              55                   60  
  
 Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65              70                   75                   80  
  
 Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85              90                   95  
  
 Ser Ser Ala

<210> 95  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> anti-HCV immunogenic peptide  
  
 <400> 95  
  
 Gly Trp Val Cys Ala Arg Arg Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1               5                   10                   15  
  
 Leu Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly  
 20              25                   30  
  
 Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Thr Arg Ala  
 35              40                   45  
  
 Trp Gly Gly Gln Asp Gly Ser Cys His Pro Glu Ala Leu Gly Leu Ile  
 50              55                   60  
  
 Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Lys Ser  
 65              70                   75                   80  
  
 Ser Thr Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85              90                   95  
  
 Ser Ser Ala

<210> 96  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide

<400> 96

Gly	Trp	Val	Cys	Ala	Arg	Leu	Gly	Arg	Leu	Pro	Ser	Gly	Arg	Asn	Leu
1				5				10						15	

Val	Glu	Gly	Asp	Asn	Leu	Ser	Pro	Arg	Leu	Ala	Ser	Pro	Arg	Ala	Gly
	20					25						30			

Pro	Gly	Leu	Ser	Pro	Gly	Thr	Leu	Gly	Pro	Ser	Met	Ala	Met	Arg	Ala
	35				40						45				

Trp	Gly	Gly	Gln	Asp	Gly	Ser	Cys	His	Pro	Ala	Ala	Leu	Gly	Leu	Ile
	50				55					60					

Gly	Ala	Pro	Arg	Thr	Pro	Gly	Val	Gly	Arg	Val	Ile	Trp	Val	Lys	Ser
	65				70				75			80			

Ser	Thr	Pro	Ser	His	Ala	Ala	Ser	Pro	Thr	Ser	Trp	Gly	Thr	Ser	Arg
	85						90					95			

Ser Ser Ala

<210> 97  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide

<400> 97

Gly	Trp	Val	Cys	Ala	Arg	Leu	Gly	Arg	Leu	Pro	Ser	Gly	Arg	Asn	Leu
1					5				10					15	

Val	Glu	Gly	Asp	Asn	Leu	Ser	Pro	Arg	Leu	Ala	Ser	Pro	Arg	Ala	Gly
	20					25		30							

Pro	Gly	Leu	Ser	Pro	Gly	Thr	Leu	Gly	Pro	Ser	Met	Ala	Met	Arg	Ala
	35				40						45				

Trp	Gly	Gly	Gln	Asp	Gly	Ser	Cys	His	Pro	Val	Ala	Leu	Gly	Leu	Val
	50				55					60					

Gly	Ala	Pro	Arg	Thr	Pro	Gly	Val	Gly	Arg	Val	Ile	Trp	Val	Lys	Ser
	65				70				75			80			

Ser	Ile	Pro	Ser	His	Ala	Ala	Ser	Pro	Thr	Ser	Trp	Gly	Thr	Phe	Arg
	85						90					95			

Ser Ser Ala

<210> 98  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
  
 <223> anti-HCV immunogenic peptide  
  
 <400> 98  
  
 Gly Trp Val Cys Ala Arg Arg Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1               5               10               15  
  
 Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly  
 20               25               30  
  
 Pro Gly Pro Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala  
 35               40               45  
  
 Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Leu Gly Leu Val  
 50               55               60  
  
 Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65               70               75               80  
  
 Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85               90               95  
  
 Ser Ser Ala

<210> 99  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
  
 <223> anti-HCV immunogenic peptide  
  
 <400> 99  
  
 Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1               5               10               15  
  
 Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly  
 20               25               30  
  
 Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala  
 35               40               45  
  
 Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Leu Gly Leu Val  
 50               55               60  
  
 Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65               70               75               80  
  
 Ser Ile Pro Ser His Ala Gly Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85               90               95  
  
 Ser Ser Ala

<210> 100  
<211> 99  
<212> PRT  
<213> Artificial Sequence  
  
<220>  
<223> anti-HCV immunogenic peptide  
  
<400> 100  
  
Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
1 5 10 15  
  
Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly  
20 25 30  
  
Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala  
35 40 45  
  
Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Leu Gly Leu Val  
50 55 60  
  
Gly Ala Pro Gln Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
65 70 75 80  
  
Ser Ile Pro Ser His Ala Gly Ser Pro Thr Ser Trp Gly Thr Phe Arg  
85 90 95  
  
Ser Ser Gly

<210> 101  
<211> 99  
<212> PRT  
<213> Artificial Sequence  
  
<220>  
<223> anti-HCV immunogenic peptide  
  
<400> 101  
  
Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
1 5 10 15  
  
Val Glu Gly Asp Asn Leu Ser Pro Arg Phe Ala Ser Pro Arg Ala Gly  
20 25 30  
  
Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala  
35 40 45  
  
Trp Gly Gly Gln Asp Gly Ser Cys Leu Pro Ala Ala Leu Gly Leu Val  
50 55 60  
  
Gly Ala Pro Met Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
65 70 75 80  
  
Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
85 90 95  
  
Ser Ser Ala

<210> 102  
<211> 99

<212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide

<400> 102

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly  
 20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala  
 35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys Leu Pro Ala Ala His Gly Leu Val  
 50 55 60

Gly Ala Pro Met Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85 90 95

Ser Ser Ala

<210> 103  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide

<400> 103

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly  
 20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala  
 35 40 45

Val Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Leu Gly Leu Val  
 50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85 90 95

Ser Ser Ala

<210> 104  
 <211> 99  
 <212> PRT

<213> Artificial Sequence

<220>

<223> anti-HCV immunogenic peptide

<400> 104

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Val Gly  
20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala  
35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Leu Gly Leu Val  
50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
85 90 95

Ser Ser Ala

<210> 105

<211> 99

<212> PRT

<213> Artificial Sequence

<220>

<223> anti-HCV immunogenic peptide

<400> 105

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly  
20 25 30

Pro Gly Leu Ser Pro Gly Thr His Gly Pro Ser Met Ala Thr Arg Ala  
35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys Pro Pro Val Ala Leu Gly Leu Ile  
50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
85 90 95

Ser Ser Ala

<210> 106

<211> 99

<212> PRT

<213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide  
 <400> 106

Gly	Trp	Val	Cys	Ala	Arg	Leu	Gly	Arg	Leu	Pro	Ser	Gly	Leu	Asn	Leu
1				5											15

Val	Glu	Gly	Asp	Asn	Leu	Ser	Pro	Arg	Leu	Ala	Ser	Pro	Arg	Val	Gly
	20					25								30	

Pro	Gly	Leu	Ser	Pro	Gly	Thr	His	Gly	Pro	Ser	Thr	Ala	Thr	Arg	Ala
	35					40							45		

Trp	Gly	Gly	Gln	Asp	Gly	Ser	Cys	Pro	Pro	Val	Ala	Pro	Gly	Leu	Ala
	50					55					60				

Gly	Ala	Pro	Arg	Thr	Pro	Gly	Val	Gly	Arg	Val	Ile	Trp	Val	Arg	Ser
	65					70			75					80	

Ser	Ile	Pro	Ser	His	Ala	Ala	Ser	Pro	Thr	Ser	Trp	Gly	Thr	Phe	Arg
								85	90					95	

Ser Ser Ala

<210> 107  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide  
 <400> 107

Gly	Trp	Val	Cys	Ala	Arg	Leu	Gly	Arg	Leu	Pro	Ser	Gly	Arg	Asn	Leu
1					5					10					15

Val	Glu	Gly	Asp	Asn	Leu	Ser	Pro	Arg	Leu	Ala	Ser	Pro	Arg	Val	Gly
	20						25							30	

Pro	Gly	Leu	Ser	Pro	Gly	Thr	Leu	Gly	Pro	Ser	Thr	Ala	Met	Arg	Ala
	35					40							45		

Trp	Asp	Gly	Arg	Asp	Gly	Ser	Cys	Pro	Pro	Val	Val	Leu	Gly	Leu	Val
	50					55					60				

Gly	Ala	Pro	Arg	Thr	Pro	Gly	Val	Gly	Arg	Val	Ile	Trp	Val	Arg	Ser
	65					70			75					80	

Ser	Ile	Pro	Ser	His	Ala	Ala	Ser	Pro	Thr	Ser	Trp	Gly	Thr	Phe	Arg
								85	90					95	

Ser Ser Ala

<210> 108  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide

<400> 108

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly  
 20 25 30

Pro Gly Leu Ser Leu Gly Thr Leu Gly Pro Ser Met Ala Met Arg Val  
 35 40 45

Trp Asp Gly Gln Asp Gly Ser Cys His Pro Val Ala Leu Gly Leu Val  
 50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Thr Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85 90 95

Ser Ser Ala

<210> 109

<211> 99

<212> PRT

<213> Artificial Sequence

<220>

<223> anti-HCV immunogenic peptide

<400> 109

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly  
 20 25 30

Pro Gly Leu Ser Leu Gly Thr Pro Gly Pro Ser Met Ala Met Arg Ala  
 35 40 45

Trp Asp Gly Gln Asp Gly Ser Cys Pro Pro Ala Ala Leu Gly Leu Val  
 50 55 60

Gly Ala Pro Leu Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85 90 95

Ser Ser Ala

<210> 110

<211> 99

<212> PRT

<213> Artificial Sequence

<220>

<223> anti-HCV immunogenic peptide

<400> 110

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Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu
1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly
20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Thr Ala Met Arg Val
35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Leu Gly Leu Val
50 55 60

Gly Ala Leu Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser
65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Ser Arg
85 90 95

Ser Ser Ala

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<210> 111  
<211> 99  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> anti-HCV immunogenic peptide

<400> 111

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Pro  
1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly  
20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Thr Ala Met Arg Val  
35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Leu Gly Leu Val  
50 55 60

Gly Ala Leu Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Ser Arg  
85 90 95

Ser Ser Ala

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<210> 112
<211> 99
<212> PRT
<213> Artificial Sequence
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<220>  
<223> anti-HCV immunogenic peptide

<400> 112

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1               5               10               15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ile Pro Arg Val Gly  
 20              25              30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Thr Ala Met Arg Ala  
 35              40              45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Pro Gly Leu Val  
 50              55              60

Gly Ala Pro Gln Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65              70              75              80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Ser Arg  
 85              90              95

Ser Ser Ala

<210> 113

<211> 99

<212> PRT

<213> Artificial Sequence

<220>

<223> anti-HCV immunogenic peptide

<400> 113

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1               5               10               15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Val Gly  
 20              25              30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Thr Pro Met Arg Ala  
 35              40              45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Pro Gly Leu Val  
 50              55              60

Gly Ala Pro Pro Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65              70              75              80

Ser Thr Pro Pro His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85              90              95

Ser Ser Ala

<210> 114

<211> 99

<212> PRT

<213> Artificial Sequence

<220>

<223> anti-HCV immunogenic peptide

<400> 114

Gly Trp Val Cys Ala Gln Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1               5               10               15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ile Pro Arg Ala Gly  
 20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Thr Ala Met Arg Ala  
 35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Leu Gly Leu Val  
 50 55 60

Gly Ala Pro Met Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Ser His Ala Ala Leu Pro Thr Ser Trp Gly Thr Phe Arg  
 85 90 95

Ser Ser Ala

<210> 115

<211> 99

<212> PRT

<213> Artificial Sequence

<220>

<223> anti-HCV immunogenic peptide

<400> 115

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly  
 20 25 30

Thr Gly Leu Ser Pro Gly Ile Leu Gly Pro Ser Met Ala Met Arg Ala  
 35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Pro Gly Leu Val  
 50 55 60

Gly Ala Pro Gln Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85 90 95

Ser Ser Ala

<210> 116

<211> 99

<212> PRT

<213> Artificial Sequence

<220>

<223> anti-HCV immunogenic peptide

<400> 116

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Asp Pro Arg Ala Gly  
 20 25 30

Thr Gly Leu Ser Pro Gly Ile Leu Gly Pro Ser Met Ala Met Arg Ala  
 35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Pro Gly Leu Val  
 50 55 60

Gly Ala Pro Gln Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Ser Arg Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85 90 95

Ser Ser Ala

<210> 117

<211> 99

<212> PRT

<213> Artificial Sequence

<220>

<223> anti-HCV immunogenic peptide

<400> 117

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly  
 20 25 30

Thr Gly Leu Ser Pro Gly Ile Leu Gly Pro Ser Met Ala Met Arg Ala  
 35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Pro Gly Leu Val  
 50 55 60

Gly Ala Pro Gln Thr Pro Gly Val Gly Arg Val Phe Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85 90 95

Ser Ser Ala

<210> 118

<211> 99

<212> PRT

<213> Artificial Sequence

<220>

<223> anti-HCV immunogenic peptide

<400> 118

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly  
 20 25 30

Pro Gly Leu Ser Pro Gly Thr Pro Gly Pro Ser Met Ala Met Arg Ala  
 35                   40                   45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Pro Gly Leu Val  
 50               55               60

Gly Ala Pro Lys Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65               70               75               80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85               90               95

Ser Ser Ala

<210> 119  
<211> 99  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> anti-HCV immunogenic peptide

<400> 119

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1               5               10               15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Asn Pro Arg Ala Gly  
 20               25               30

Ser Gly Leu Ser Pro Gly Thr Pro Gly Pro Ser Met Ala Met Arg Ala  
 35               40               45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Pro Gly Leu Val  
 50               55               60

Gly Ala Pro Gln Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65               70               75               80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85               90               95

Ser Ser Ala

<210> 120  
<211> 99  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> anti-HCV immunogenic peptide

<400> 120

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1               5               10               15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Val Gly  
 20               25               30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala  
 35                   40                   45

Trp Gly Gly Gln Asp Gly Ser Cys Pro Pro Ala Ala Pro Gly Leu Val  
 50                   55                   60

Gly Ala Pro Gln Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65                   70                   75                   80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85                   90                   95

Ser Ser Ala

<210> 121  
<211> 99  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> anti-HCV immunogenic peptide

<400> 121

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1                   5                   10                   15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly  
 20                   25                   30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala  
 35                   40                   45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Pro Gly Leu Ile  
 50                   55                   60

Gly Ala Pro Gln Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65                   70                   75                   80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85                   90                   95

Ser Ser Ala

<210> 122  
<211> 99  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> anti-HCV immunogenic peptide

<400> 122

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1                   5                   10                   15

Val Glu Gly Asp Asn Leu Phe Pro Arg Leu Ala Ser Pro Arg Ala Gly  
 20                   25                   30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala  
 35                   40                   45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Pro Gly Leu Val  
 50 55 60

Gly Ala Pro Gln Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85 90 95

Ser Ser Ala

<210> 123

<211> 99

<212> PRT

<213> Artificial Sequence

<220>

<223> anti-HCV immunogenic peptide

<400> 123

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly  
 20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Val  
 35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Pro Gly Leu Val  
 50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85 90 95

Ser Ser Ala

<210> 124

<211> 99

<212> PRT

<213> Artificial Sequence

<220>

<223> anti-HCV immunogenic peptide

<400> 124

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly  
 20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Thr Arg Val  
 35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Pro Gly Leu Val  
 50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85 90 95

Ser Ser Ala

<210> 125

<211> 99

<212> PRT

<213> Artificial Sequence

<220>

<223> anti-HCV immunogenic peptide

<400> 125

Gly Trp Val Cys Ala Arg Pro Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly  
 20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Val  
 35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Thr Ala Pro Gly Leu Gly  
 50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85 90 95

Ser Ser Gly

<210> 126

<211> 99

<212> PRT

<213> Artificial Sequence

<220>

<223> anti-HCV immunogenic peptide

<400> 126

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly  
 20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Val  
 35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Thr Ala Pro Gly Leu Gly  
 50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65                70                75                80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85                90                95

Ser Ser Ala

<210> 127  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide

<400> 127

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1                5                10                15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Val Gly  
 20                25                30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Val  
 35                40                45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Thr Ala Pro Gly Leu Gly  
 50                55                60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65                70                75                80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85                90                95

Ser Ser Ala

<210> 128  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide

<400> 128

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1                5                10                15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly  
 20                25                30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala  
 35                40                45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Leu Gly Leu Val  
 50                55                60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65                   70                   75                   80

Ser Ile Pro Leu His Ala Ala Ser Pro Thr Ser Trp Gly Thr Ser Arg  
 85                   90                   95

Ser Ser Ala

<210> 129  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide

<400> 129

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly His Asn Leu  
 1                   5                   10                   15

Val Ala Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly  
 20                   25                   30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Thr Arg Ala  
 35                   40                   45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Leu Gly Leu Val  
 50                   55                   60

Gly Ala Pro Gln Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
 65                   70                   75                   80

Ser Ile Pro Leu His Ala Ala Ser Pro Thr Ser Trp Gly Thr Ser Arg  
 85                   90                   95

Ser Ser Ala

<210> 130  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> anti-HCV immunogenic peptide

<400> 130

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1                   5                   10                   15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
 20                   25                   30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala  
 35                   40                   45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Pro Gly Leu Val  
 50                   55                   60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Ala Ile Trp Val Arg Ser  
 65                   70                   75                   80

Ser Ile Pro Leu His Ala Ala Ser Pro Thr Ser Trp Gly Thr Ser Arg  
85 90 95

Ser Ser Val

<210> 131  
<211> 99  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> anti-HCV immunogenic peptide

<400> 131

Gly Trp Val Cys Ala Arg Pro Gly Arg Leu Pro Ser Gly Arg Asn Leu  
1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Asn Pro Arg Ala Gly  
20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Val  
35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Val Leu Gly Leu Val  
50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
65 70 75 80

Ser Ile Pro Leu His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
85 90 95

Ser Ser Ala

<210> 132  
<211> 99  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> anti-HCV immunogenic peptide

<400> 132

Gly Trp Val Cys Ala Arg Ser Gly Arg Leu Pro Ser Gly Arg Asn Leu  
1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Asp Pro Arg Ala Gly  
20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala  
35 40 45

50 55 60

Ser Ile Pro Leu His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
85 90 95

Ser Ser Ala

<210> 133  
<211> 99  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> anti-HCV immunogenic peptide

<400> 133

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly His Asn Leu  
1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Val Pro Arg Ala Gly  
20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala  
35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Glu Ala Pro Gly Leu Ile  
50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
65 70 75 80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
85 90 95

Ser Ser Ala

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<210> 134
<211> 99
<212> PRT
<213> Artificial Sequence
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<220>  
<223> anti-HCV immunogenic peptide

<400> 134

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1 .

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Asn Pro Arg Ala Gly  
20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Pro Met Arg Ala  
 35                    40                    45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Glu Ala Pro Gly Leu Ile

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser

Ser Ile Pro Leu His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg

Ser Ser Ala

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<210> 135
<211> 99
<212> PRT
<213> Artificial Sequence

<220>
<223> anti-HCV immunogenic peptide

<400> 135

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu
1           5          10          15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Asn Pro Arg Ala Gly
20          25          30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala
35          40          45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Leu Gly Leu Ile
50          55          60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser
65          70          75          80

Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg
85          90          95

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Ser Ser Ala

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<210> 136
<211> 99
<212> PRT
<213> Artificial Sequence

<220>
<223> anti-HCV immunogenic peptide

<400> 136

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu
1           5          10          15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ile Pro Arg Ala Gly
20          25          30

Pro Gly Leu Ser Leu Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala
35          40          45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Leu Gly Leu Val
50          55          60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Ala Ile Trp Val Arg Ser
65          70          75          80

Ser Ile Pro Ser Arg Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg
85          90          95

```

Ser Ser Ala

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<210> 137
<211> 99
<212> PRT
<213> Artificial Sequence

<220>
<223> anti-HCV immunogenic peptide

<400> 137

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu
1           5          10          15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Val Pro Arg Ala Gly
20          25          30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala
35          40          45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Leu Gly Leu Val
50          55          60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Ala Ile Trp Val Arg Ser
65          70          75          80

Ser Ile Pro Ser Arg Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg
85          90          95

Leu Ser Ala

```

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<210> 138
<211> 99
<212> PRT
<213> Artificial Sequence

<220>
<223> anti-HCV immunogenic peptide

<400> 138

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu
1           5          10          15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly
20          25          30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala
35          40          45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Val Leu Gly Leu Val
50          55          60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Ala Ile Trp Val Arg Ser
65          70          75          80

Ser Ile Pro Ser Arg Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg
85          90          95

Ser Ser Ala

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<210> 139  
<211> 99  
<212> PRT  
<213> Artificial Sequence  
  
<220>  
<223> anti-HCV immunogenic peptide  
  
<400> 139  
  
Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly His Asn Leu  
1 5 10 15  
  
Val Asp Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Ala Gly  
20 25 30  
  
Pro Gly Pro Ser Pro Gly Ile Leu Gly Pro Ser Met Ala Met Arg Ala  
35 40 45  
  
Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Pro Gly Leu Val  
50 55 60  
  
Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Ala Ile Trp Val Arg Ser  
65 70 75 80  
  
Ser Ile Pro Ser Arg Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
85 90 95  
  
Ser Ser Ala

<210> 140  
<211> 99  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> anti-HCV immunogenic peptide

<400> 140

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
1 5 10 15

Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly  
20 25 30

Pro Gly Leu Ser Arg Gly Ile Leu Gly Pro Ser Met Ala Thr Arg Ala  
35 40 45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Leu Gly Leu Val  
50 55 60

Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
65 70 75 80

Ser Ile Pro Ser Arg Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
85 90 95

Ser Ser Val

<210> 141  
<211> 99  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> anti-HCV immunogenic peptide  
<400> 141

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
1               5                           10                           15  
Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly  
20               25                           30  
Pro Gly Pro Ser Pro Gly Ile Leu Gly Pro Ser Met Ala Thr Arg Ala  
35               40                           45  
Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Leu Gly Leu Ala  
50               55                           60  
Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
65               70                           75                           80  
Ser Ile Pro Ser Arg Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
85               90                           95  
Ser Ser Ala

<210> 142  
<211> 99  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> anti-HCV immunogenic peptide  
<400> 142

Gly Trp Val Cys Ala Arg Pro Gly Arg Leu Pro Ser Gly Arg Asn Leu  
1               5                           10                           15  
Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Asp Pro Arg Ala Gly  
20               25                           30  
Pro Gly Leu Ser Pro Gly Ile Leu Gly Pro Ser Met Ala Met Arg Ala  
35               40                           45  
Trp Gly Gly Gln Asp Gly Ser Cys His Pro Met Ala Leu Gly Leu Val  
50               55                           60  
Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Val Ile Trp Val Arg Ser  
65               70                           75                           80  
Ser Ile Pro Ser Arg Ala Ala Ser Pro Thr Ser Trp Gly Thr Ser Arg  
85               90                           95  
Ser Ser Ala

<210> 143  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> anti-HCV immunogenic peptide  
  
 <400> 143  
  
 Gly Trp Val Cys Ala Arg Pro Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1               5                           10                           15  
  
 Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Asn Pro Arg Ala Gly  
 20               25                           30  
  
 Pro Gly Leu Ser Pro Gly Ile Leu Gly Pro Ser Met Ala Thr Arg Ala  
 35               40                           45  
  
 Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Leu Gly Leu Ile  
 50               55                           60  
  
 Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Ala Ile Trp Val Arg Ser  
 65               70                           75                           80  
  
 Ser Ile Pro Ser Arg Ala Ala Ser Pro Thr Ser Trp Gly Thr Ser Arg  
 85               90                           95  
  
 Ser Ser Val

<210> 144  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> anti-HCV immunogenic peptide  
  
 <400> 144  
  
 Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1               5                           10                           15  
  
 Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Val Gly  
 20               25                           30  
  
 Pro Gly Leu Ser Pro Gly Thr Pro Gly Pro Ser Met Ala Met Arg Ala  
 35               40                           45  
  
 Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Ala Leu Gly Leu Val  
 50               55                           60  
  
 Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Ala Ile Trp Val Arg Ser  
 65               70                           75                           80  
  
 Ser Ile Pro Ser Arg Ala Ala Ser Pro Ile Ser Trp Gly Thr Phe Arg  
 85               90                           95  
  
 Ser Ser Ala

<210> 145  
 <211> 99

<212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> anti-HCV immunogenic peptide  
  
 <400> 145  
  
 Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1               5               10               15  
  
 Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Val Gly  
 20              25              30  
  
 Pro Gly Leu Ser Pro Gly Thr His Gly Pro Ser Met Ala Met Arg Val  
 35              40              45  
  
 Trp Gly Gly Gln Asp Gly Ser Cys His Pro Val Asp Pro Gly Leu Val  
 50              55              60  
  
 Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Ala Ile Trp Val Arg Ser  
 65              70              75              80  
  
 Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85              90              95  
  
 Ser Ser Ala

<210> 146  
 <211> 99  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> anti-HCV immunogenic peptide  
  
 <400> 146  
  
 Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
 1               5               10               15  
  
 Val Ala Gly Asp Asn Leu Ser Pro Arg Leu Ala Gly Pro Arg Val Gly  
 20              25              30  
  
 Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Pro Met Arg Ala  
 35              40              45  
  
 Trp Gly Gly Arg Asp Gly Ser Cys His Pro Ala Ala Pro Gly Leu Val  
 50              55              60  
  
 Gly Ala Pro Arg Thr Pro Gly Val Gly Arg Ala Ile Trp Val Arg Ser  
 65              70              75              80  
  
 Ser Ile Pro Ser His Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85              90              95  
  
 Ser Ser Ala

<210> 147  
 <211> 99  
 <212> PRT

<213> Artificial Sequence

<220>

<223> anti-HCV immunogenic peptide

<400> 147

Gly Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
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Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Ser Pro Arg Ala Gly  
 20              25              30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala  
 35              40              45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Pro Gly Leu Val  
 50              55              60

Gly Ala Pro Pro Thr Pro Gly Val Gly Arg Ala Ile Trp Val Arg Ser  
 65              70              75              80

Ser Ile Pro Ser Arg Val Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85              90              95

Ser Ser Ala

<210> 148

<211> 99

<212> PRT

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<223> anti-HCV immunogenic peptide

<400> 148

Arg Trp Val Cys Ala Arg Leu Gly Arg Leu Pro Ser Gly Arg Asn Leu  
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Val Glu Gly Asp Asn Leu Ser Pro Arg Leu Ala Asp Pro Arg Val Gly  
 20              25              30

Pro Gly Leu Ser Leu Gly Thr Leu Gly Pro Ser Met Ala Met Arg Ala  
 35              40              45

Trp Gly Gly Gln Asp Gly Ser Cys His Pro Ala Ala Pro Gly Leu Val  
 50              55              60

Gly Ala Pro Arg Thr Pro Gly Ala Gly Arg Ala Ile Trp Val Arg Ser  
 65              70              75              80

Ser Ile Pro Ser Arg Ala Ala Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85              90              95

Ser Ser Ala

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Val	Glu	Gly	Asp	Asn	Leu	Ser	Pro	Arg	Leu	Ala	Asp	Pro	Arg	Val	Gly
	20					25								30	

Pro	Gly	Leu	Ser	Leu	Gly	Thr	Leu	Gly	Pro	Ser	Met	Ala	Met	Arg	Ala
		35				40							45		

Trp	Gly	Gly	Gln	Asp	Gly	Ser	Cys	His	Pro	Ala	Ala	Pro	Gly	Leu	Val
	50				55							60			

Gly	Ala	Pro	Arg	Thr	Pro	Gly	Gly	Arg	Ala	Ile	Trp	Val	Arg	Ser	
	65				70			75					80		

Ser	Ile	Pro	Ser	Arg	Ala	Ala	Ser	Pro	Thr	Ser	Trp	Gly	Thr	Phe	Arg
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Ser Ser Ala

<210> 150  
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 <400> 150

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Val	Gly	Gly	Asp	Asn	Leu	Ser	Pro	Arg	Leu	Ala	Asn	Pro	Arg	Val	Gly
	20				25								30		

Pro	Gly	Leu	Ser	Pro	Gly	Thr	Leu	Gly	Pro	Ser	Met	Ala	Thr	Arg	Ala
		35				40						45			

Trp	Gly	Gly	Gln	Asp	Gly	Ser	Cys	His	Pro	Ala	Ala	Pro	Gly	Leu	Val
	50				55			60							

Gly	Ala	Pro	Gln	Thr	Pro	Gly	Val	Gly	His	Ala	Ile	Trp	Val	Arg	Ser
	65				70			75					80		

Ser	Ile	Pro	Ser	Arg	Val	Ala	Ser	Pro	Thr	Ser	Trp	Gly	Thr	Phe	Arg
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Ser Ser Ala

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Ala Xaa Xaa Xaa Xaa Xaa Pro Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
20 25 30

Pro Gly Xaa Ser Xaa Gly Thr Xaa Gly Xaa Xaa Xaa Xaa Xaa Arg Ala
35 40 45

Xaa Xaa Xaa Xaa Xaa Gly Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
50 55 60

Gly Xaa Xaa Xaa Thr Pro Gly Xaa Xaa Xaa Ala Xaa Xaa Xaa Xaa Ser
65 70 75 80

Ser Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Ser Trp Gly Xaa Xaa Arg
85 90 95

Ser Xaa Xaa

<210> 152
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<400> 152

Asp Trp Val Cys Ala Arg Arg Val Lys Leu Leu Ser Gly His Ser Leu
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Ala Asp Gly Asp Ser Leu Ser Pro Arg Arg Val Gly Ala Arg Ala Gly  
 20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Val Met Arg Ala  
 35 40 45

Ala Gly Gly Gln Gly Gly Ser Cys Pro Pro Ala Ala Pro Val His Leu  
 50 55 60

Gly Ala Gln Met Thr Pro Gly Val Gly Pro Ala Ile Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Leu Arg Ala Asp Ser Pro Thr Ser Trp Gly Thr Phe Arg  
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Ser Ser Ala

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Asp Trp Val Cys Ala Arg Arg Val Lys Leu Leu Asn Gly His Ser Leu  
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 20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Val Thr Arg Ala  
 35 40 45

Ala Gly Gly Gln Gly Gly Ser Cys Pro His Ala Ala Pro Val His Pro  
 50 55 60

Gly Ala Gln Met Thr Pro Gly Gly Pro Ala Ile Trp Val Lys Ser  
 65 70 75 80

Ser Ile Pro Leu Arg Ala Asp Ser Pro Thr Ser Trp Gly Thr Ser Arg  
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Ser Ser Ala

<210> 154

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<212> PRT

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<223> anti-HCV immunogenic peptide

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 20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Val Thr Arg Ala  
 35 40 45

Ala Gly Gly Gln Gly Gly Ser Cys Pro His Ala Ala Leu Val His Leu  
 50 55 60

Gly Ala Gln Met Thr Pro Gly Gly Pro Ala Ile Trp Val Lys Ser  
 65 70 75 80

Ser Ile Pro Leu Arg Ala Asp Ser Pro Thr Ser Trp Gly Thr Ser Arg  
 85 90 95

Ser Ser Ala

<210> 155

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<212> PRT

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Asp Trp Val Cys Ala Arg Arg Val Lys Leu Leu Asn Gly His Ser Pro  
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Ala Asp Asp Asp Ser Leu Ser Pro Arg Arg Val Arg Ala Glu Ala Gly  
 20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Val Met Arg Ala  
 35 40 45

Ala Gly Gly Gln Gly Gly Ser Cys Pro Arg Ala Ala Pro Val His Leu  
 50 55 60

Gly Ala Gln Met Thr Pro Gly Gly Pro Ala Ile Trp Val Lys Ser  
 65 70 75 80

Ser Ile Pro Leu Arg Val Asp Ser Pro Thr Ser Trp Gly Thr Ser Arg  
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Ser Ser Ala

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 20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Val Thr Arg Ala  
 35                                  40                                  45

Ala Gly Gly Gln Asp Gly Ser Cys Pro His Ala Ala Pro Val His Leu  
 50                                  55                                  60

Gly Ala Gln Thr Thr Pro Gly Asp Gly Pro Ala Ile Trp Val Lys Ser  
 65                                  70                                  75                                  80

Ser Ile Pro Leu Arg Ala Asp Ser Pro Thr Ser Trp Gly Thr Ser Arg  
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Ser Ser Ala

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 20                                  25    30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Val Thr Arg Ala  
 35                                  40    45

Ala Gly Gly Gln Asp Gly Ser Cys Pro Arg Ala Ala Pro Val His Leu  
 50                                  55    60

Gly Ala Gln Met Thr Pro Gly Asp Gly Pro Ala Ile Trp Val Lys Ser  
 65                                  70    75                                  80

Ser Ile Pro Leu Arg Ala Asp Ser Pro Thr Ser Trp Gly Thr Ser Arg  
 85                                  90    95

Ser Ser Ala

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 20                                  25    30

Pro Gly Leu Ser Leu Gly Thr Leu Gly Pro Ser Met Val Thr Arg Ala  
   35                   40                   45  
 Ala Gly Gly Gln Gly Gly Ser Cys Pro His Ala Ala Pro Val His Leu  
   50                   55                   60  
 Gly Ala Gln Thr Thr Pro Gly Asp Gly Pro Ala Ile Trp Val Lys Ser  
   65                   70                   75                   80  
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 Ser Ser Ala

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   20                   25                   30  
  
 Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Val Thr Arg Ala  
   35                   40                   45  
  
 Ala Gly Gly Gln Gly Gly Ser Cys Pro His Ala Ala Pro Val Gln Leu  
   50                   55                   60  
  
 Gly Ala Gln Thr Thr Pro Gly Gly Pro Ala Ile Trp Val Lys Ser  
   65                   70                   75                   80  
  
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   20                   25                   30  
  
 Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Val Met Arg Ala  
   35                   40                   45

Ala Gly Gly Gln Gly Gly Ser Cys Pro His Ala Ala Pro Val His Leu  
 50                   55                   60

Gly Ala Gln Thr Thr Pro Gly Gly Pro Ala Ile Trp Val Lys Ser  
 65                   70                   75                   80

Ser Ile Pro Leu Arg Ala Asp Ser Pro Thr Ser Trp Gly Thr Ser Arg  
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Ser Ser Ala

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 20                   25                   30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Val Thr Arg Ala  
 35                   40                   45

Ala Gly Gly Gln Gly Gly Ser Cys Pro His Ala Ala Pro Val His Leu  
 50                   55                   60

Gly Ala Gln Met Thr Pro Gly Gly Pro Ala Ile Trp Val Lys Ser  
 65                   70                   75                   80

Ser Ile Pro Leu Arg Ala Ala Ser Pro Thr Ser Trp Gly Thr Ser Arg  
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Ser Ser Ala

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 20                   25                   30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Met Val Thr Arg Ala  
 35                   40                   45

Ala Gly Gly Gln Gly Gly Ser Cys Pro Arg Ala Ala Leu Val His Leu  
 50 55 60

Gly Ala Lys Met Thr Pro Gly Gly Pro Ala Thr Trp Ala Arg Ser  
 65 70 75 80

Ser Ile Pro Leu Arg Ala Asp Ser Pro Thr Ser Trp Gly Thr Ser Arg  
 85 90 95

Ser Ser Ala

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 20 25 30

Pro Gly Leu Ser Leu Gly Thr Leu Gly Pro Ser Met Val Thr Arg Ala  
 35 40 45

Ala Gly Gly Gln Gly Gly Ser Cys Pro His Ala Ala Pro Val His Leu  
 50 55 60

Gly Ala Gln Thr Thr Pro Gly Gly Pro Ala Ile Trp Val Arg Ser  
 65 70 75 80

Ser Ile Pro Ser Arg Ala Asp Ser Pro Thr Ser Trp Gly Thr Ser Arg  
 85 90 95

Ser Ser Ala

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 20 25 30

Pro Gly Pro Ser Leu Gly Thr Leu Gly Pro Ser Met Val Met Arg Ala  
 35 40 45

Ala Gly Gly Gln Gly Gly Ser Cys Pro His Ala Ala Pro Val Gln Ile  
 50 55 60

Gly Pro Gln Met Thr Pro Gly Asp Gly Pro Ala Ile Trp Val Lys Ser  
 65                   70                   75                   80

Ser Ile Pro Ser Arg Ala Asp Ser Pro Ile Ser Trp Gly Thr Ser Arg  
 85                   90                   95

Ser Ser Ala

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Ala Asp Gly Asp Ser Leu Phe Pro Arg His Ala Arg Ala Glu Asp Gly  
 20                   25                   30

Pro Gly Arg Ser Leu Gly Thr Pro Gly Pro Ser Met Val Thr Arg Ala  
 35                   40                   45

Ala Gly Gly Gln Gly Phe Cys Leu Leu Ala Ala Pro Asp Arg Val  
 50                   55                   60

Gly Ala Pro Thr Thr Pro Gly Glu Gly Pro Ala Ile Trp Val Arg Ser  
 65                   70                   75                   80

Ser Thr Leu Ser His Ala Gly Ser Pro Ile Ser Trp Gly Ile Phe Arg  
 85                   90                   95

Ser Ser Ala

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Ala Thr Gly Gly Ser Leu Ser Pro Arg His Val Gly Ala Arg Ala Gly  
 20                   25                   30

Pro Gly Leu Ser Leu Gly Thr Leu Gly Leu Phe Met Ala Met Arg Ala  
 35                   40                   45

Val Gly Gly Gln Asp Gly Ser Cys Pro Pro Ala Ala Leu Gly His Leu  
 50                   55                   60

Gly Ala Pro Met Thr Pro Gly Glu Gly Leu Ala Thr Trp Val Lys Ser  
 65                   70                   75                   80

Ser Ile Pro Leu Arg Ala Asp Ser Pro Ile Ser Trp Gly Thr Phe Arg  
 85                   90                   95

Ser Ser Ala

<210> 167  
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Tyr Trp Val Cys Ala Leu His Val Arg Leu Pro Ser Gly His Ser Leu  
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Ala Arg Gly Gly Ser Leu Ser Pro Arg Arg Val Val Ala Arg Asp Gly  
 20                   25                   30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Thr Val Met Arg Ala  
 35                   40                   45

Ala Gly Gly Arg Asp Gly Ser Cys Pro Pro Ala Val Leu Gly Arg Ala  
 50                   55                   60

Gly Ala Gln Met Thr Pro Gly Glu Asp Pro Ala Ile Trp Val Arg Ser  
 65                   70                   75                   80

Ser Ile Pro Leu His Ala Gly Ser Pro Thr Ser Trp Gly Thr Phe Arg  
 85                   90                   95

Ser Ser Ala

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<400> 168

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Pro Gly Leu Ser Leu Gly Thr Leu Gly Pro Ser Thr Glu Met Arg Ala  
 35                   40                   45

Val Gly Gly Gln Asp Gly Phe Cys Pro Pro Ala Val Leu Val Leu Ile  
 50                   55                   60

Gly Ala Gln Met Thr Pro Gly Val Asp Pro Ala Thr Trp Val Arg Ser  
 65                   70                   75                   80

Ser Thr Pro Leu His Ala Asp Ser Pro Thr Ser Trp Gly Thr Phe Arg  
85 90 95

Ser Ser Ala

<210> 169  
<211> 99  
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<220>  
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<400> 169

Asp Trp Val Cys Ala Gln Tyr Val Arg Leu Pro Ser Gly Arg Ser Leu  
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20 25 30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Ser Thr Gly Ile Arg Ala  
35 40 45

Val Gly Trp Gln Asp Gly Ser Cys Pro Pro Val Val Leu Ala Leu Val  
50 55 60

Gly Ala Gln Met Thr Pro Gly Val Asp Pro Ala Thr Leu Val Arg Ser  
65 70 75 80

Ser Ile Pro Leu Arg Val Asp Ser Pro Thr Ser Trp Gly Thr Phe Arg  
85 90 95

Ser Ser Ala

<210> 170  
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<400> 170

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20 25 30

Val Val Gly Gln Asp Gly Ser Cys Pro Pro Ala Val Leu Ala Pro Ala  
50 55 60

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Ser Ile Pro Leu Arg Ala Asp Leu Pro Thr Ser Trp Gly Thr Phe Arg  
85 90 95

Ser Ser Ala

<210> 171  
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<400> 171

Asp Trp Val Cys Ala Gln Tyr Val Lys Leu Pro Ser Gly Arg Asn Leu  
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Ala Asp Gly Val Ser Leu Ser Pro Arg His Ala His Ala Arg Ala Gly  
20 25 30

Pro Gly Leu Ser Leu Gly Thr Leu Gly Pro Ser Met Gly Met Arg Ala  
35 40 45

Ala Val Gly Gln Asp Gly Phe Cys Pro Pro Val Val Leu Ala Leu Val  
50 55 60

Gly Ala Gln Met Thr Pro Gly Val Asp Pro Ala Thr Trp Val Lys Ser  
65 70 75 80

Ser Ile Pro Leu Arg Ala Asp Ser Pro Thr Ser Trp Gly Thr Phe Arg  
85 90 95

Ser Ser Ala

<210> 172  
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<220>  
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<400> 172

Ala Asp Gly Gly Ser Leu Ser Pro Arg His Ala Glu Ala Arg Ala Gly  
20 25 30

Pro Gly Pro Ser Leu Gly Thr Leu Gly Pro Ser Met Gly Met Arg Ala  
 35                    40                    45

Val Gly Gly Gln Asp Gly Ser Cys Leu Pro Val Ala Pro Ala Leu Val

Gly Ala Gln Met Thr Pro Gly Val Asp His Ala Thr Trp Val Arg Ser

Ser Ile Pro Ser Arg Val Asp Ser Pro Ile Ser Trp Gly Thr Phe Arg

Ser Leu Val

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<210> 173
<211> 99
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<213> Artificial Sequence

<220>
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<400> 173

Asp Trp Val Cys Ala Gln Tyr Val Arg Leu Pro Ser Gly His Asn Pro
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Ala Asp Gly Ala Ser Leu Ser Pro Arg Arg Ala His Ala Arg Ala Gly
20          25          30

Pro Gly Leu Ser Leu Gly Thr Pro Gly Pro Phe Met Gly Thr Arg Ala
35          40          45

Ala Val Gly Gln Asp Gly Ser Cys Pro Pro Ala Val Pro Asp Pro Ala
50          55          60

Gly Ala Gln Met Thr Pro Gly Ala Asp Pro Ala Thr Trp Val Arg Ser
65          70          75          80

Ser Ile Pro Leu Arg Ala Asp Ser Leu Thr Ser Trp Gly Ile Phe Arg
85          90          95

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Ser Ser Ala

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<220>
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<400> 174

Ser Trp Val Cys Val Gln Cys Ala Arg Leu Pro Ser Gly Arg Asn Leu
1           5          10          15

Ala Val Gly Ala Asn Pro Ser Pro Gly Arg Ala Glu Pro Arg Ala Gly
20          25          30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Tyr Met Gly Met Arg Ala
35          40          45

Ala Gly Gly Gln Gly Gly Ser Cys Pro Arg Ala Ala Leu Ala His Arg
50          55          60

Gly Ala Gln Met Thr Pro Gly Val Asp His Ala Ile Trp Val Arg Ser
65          70          75          80

Ser Ile Pro Ser Arg Ala Asp Ser Pro Thr Ser Trp Gly Ile Phe Arg
85          90          95

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Ser Ser Ala

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<400> 175

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Ala Val Gly Ala Asn Pro Ser Pro Gly Arg Ala Glu Leu Arg Ala Gly
20          25          30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Tyr Met Gly Met Arg Ala
35          40          45

Ala Gly Gly Gln Asp Gly Ser Cys Pro Arg Ala Ala Leu Ala His Arg
50          55          60

Gly Ala Gln Met Thr Pro Gly Val Asp Pro Ala Ile Trp Val Arg Ser
65          70          75          80

Ser Ile Pro Ser His Ala Asp Ser Pro Ala Ser Trp Gly Thr Phe Arg
85          90          95

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Ser Ser Ala

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<210> 176
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<220>
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<400> 176

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1           5          10          15

Ala Val Gly Ala Ser Pro Ser Pro Gly Arg Ala Glu Pro Arg Ala Gly
20          25          30

Pro Gly Leu Ser Pro Gly Thr Leu Gly Pro Tyr Met Gly Met Arg Ala
35          40          45

Ala Asp Gly Gln Gly Gly Ser Cys Pro Pro Ala Ala Leu Ala His Arg
50           55           60

Gly Ala Gln Met Thr Pro Gly Val Asp Pro Ala Ile Trp Val Arg Ser
65          70          75          80

Ser Thr Pro Ser His Ala Asp Ser Pro Thr Ser Trp Gly Thr Phe Arg
85          90          95

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Ser Gln Ala

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<400> 185

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